

CLAIMS:

1-14 (Canceled).

15. (Currently Amended) A rotary photographic shutter or the like ~~including~~ comprising a plurality of shutter blades movable between an open and a closed position, ~~a drive means including~~ a linkage coupled between the actuator and the shutter blades for moving the shutter blades between the open and closed positions, and ~~a damping system~~ damper engaging the linkage and isolated from contact with the shutter blades, the damper being operable to ~~arrest the movement of the drive means at one of the open and closed positions~~ damp motion of the shutter blades without contacting them.

16. (Currently Amended) A rotary photographic shutter comprising:
a) a base plate having a central aperture;
b) a rotating ring;
c) a plurality of ~~rotating ring operable~~ shutter blades supported by the base plate and coupled to the rotating ring for opening and closing the aperture; and
d) an actuator coupled to the rotating ring;
e) a linkage coupled between the actuator and the rotating ring; and
[[c)] f) a damping system on the base plate engaging the linkage, isolated from contact with the shutter blades, and operable to dampen the opening and closing of the ~~rotating ring operable~~ shutter blades.

17. (Currently Amended) A The rotary photographic shutter ~~as in~~ of Claim 16, wherein the linkage comprises ~~comprising~~:

a) a drive arm pivotally supported on the base plate to swing back and forth through a defined arc, the swing of the drive arm in one direction acting to move the shutter blades to an open position and the swing in a return direction acting to move the shutter blades to a closed position; and

b) wherein the damping system engages the drive arm for arresting ~~arranged to arrest~~ the swing of the drive arm at each end of the arc.

18. (Currently Amended) A The rotary photographic shutter ~~as in~~ of Claim ~~[[16]]~~ 17 wherein the damping system comprises:

~~a) a drive arm pivotally supported on the base plate to swing back and forth through a defined arc, the swing of the drive arm in one direction acting to move the shutter blades to an open position and the swing in a return direction acting to move the shutter blades to a closed position;~~

~~[[b)]]~~ a detent having opposite ends disposed to arrest the swinging movement of ~~a shutter blade operating~~ the drive arm at each end of the swing;

c) bumpers on each of the opposite ends of the detent; and

d) at least one damper on the drive arm positioned to strike and engage against each of the shaped bumpers at the limits of the swing of the drive arm.

19. (Currently Amended) A The rotary photographic shutter ~~as in~~ of Claim 18 wherein the bumpers and the damper are shaped to provide substantially point contact therebetween during the duration of the engagement.

20. (Currently Amended) A The rotary photographic shutter ~~as in~~ of wherein the damping system ~~includes~~ comprises:

a) bumpers carried by one of the ~~driving~~ drive arm and the base plate composed of a polyethylene having a molecular weight of 3 to 6 million; and

b) a damper on the other of the drive arm and base plate composed of a polyurethane material that under goes a transformation from a glass phase to a rubber phase when it strikes the bumpers.

21. (Withdrawn) A damping system for arresting motion of a body moving through a path of travel comprising:

a) a bumper located at an end of the path of travel;

b) a damper carried by the body and positioned to strike the bumper at the end of the path of travel, the damper comprising a material that undergoes a transformation from a glass phase to a rubber phase when struck thereby causing a tendency of the damper to stick to the bumper; and

c) the damper and bumper having shapes that limit the area of contact between the damper and bumper..

22. (Withdrawn) A damping system as in Claim 20 wherein the shape of the damper and bumper limit the contact therebetween to substantially a point contact.

23. (Withdrawn) A damping system for arresting motion of a body moving through a path of travel comprising:

a) a bumper located at an end of the path of travel, the bumper composed of a polyethylene having a molecular weight of 3 to 6 million; and

b) a damper carried by the body and engageable against the bumper, the damper composed of a polyurethane material.

24. (Withdrawn) A damping system as in Claim 23 wherein the polyurethane material undergoes a transformation from a glass phase to a rubber phase when struck thereby causing a tendency of the damper to stick to the bumper and the damper and bumper having shapes that limit the contact area of one against the other.

25. (Withdrawn) A damping system for arresting motion of a body moving through a path of travel as in Claim 23 wherein the damper comprises of a damped polyurethane having an ASTM D2240 Shore A Durometer hardness of about 58.

26. (Withdrawn) A damping system for arresting motion of a body moving through a path of travel as in Claim 23 wherein the damper comprises a polyurethane having an ASTM D2240 Shore A Durometer Impact at 73°F (23°C) of about 58, an ASTM D575 glass transition temperature of about 18°F (−8°C), a second ASTM D2632 rebound at 20°C of 0.0, and a Compression Modulus about 845psi (5826kPa).

27. (Withdrawn) A damping system for arresting motion of a body moving through a path of travel as in Claim 23 wherein the bumpers and damper are shaped to provide substantially point contact therebetween during the duration of the engagement.

28. (Withdrawn) A damping system for arresting motion of a body moving through a path of travel as in Claim 23 wherein the damper has a cross section providing a straight corner edge arranged to strike the bumper.

29. (Withdrawn) A damping system for arresting motion of a body moving through a path of travel as in Claim 28 wherein the bumper has a curved surface to receive the

strike of the damper straight corner edge thereby providing the substantially point contact therebetween.

30. (Withdrawn) A damping system for arresting motion of a body moving through a path of travel as in Claim 23 wherein the moving body is a component of a rotary photographic shutter.

31. (Withdrawn) A damping system for arresting the motion of a body moving through a path of travel comprising:

- a) a damper carried by the body, the damper having a cross sectional shape providing a straight corner edge;

- b) a spring mounted bumper located at an end of the path of travel, the spring urging the bumper towards the plane of the path of travel;

- c) the bumper having a curved surface to receive a strike of the damper straight corner edge as the body moves to the end of its path of travel thereby providing substantially point contact between the damper and the bumper, and the bumper being positioned so as to receive the strike at a generally central location on the bumper between its opposite ends; and

- d) the spring providing sufficient bias to prevent the force of the strike from moving the bumper so far in a direction normal to the plane of the path of travel that the damper passes over one or another of the opposite ends.

32. (Withdrawn) A damping system as in Claim 31 wherein:

a) the damper comprises a material that undergoes a transformation from a glass phase to a rubber phase when struck thereby causing a tendency of the damper to stick to the bumper; and

b) the damper and bumper having shapes that limit the contact area between the damper and bumper.

33. (Withdrawn-Currently Amended) A The rotary photographic shutter as in of Claim 15, ~~the damping system~~ further comprising a bumper and a damper, the bumper and the damper being shaped to provide substantially point contact therebetween at the one of the open and closed positions.

34. (Withdrawn-Currently Amended) The rotary photographic shutter of Claim 15 ~~further including , wherein the linkage comprises a drive arm connected to the drive means, a component of the damping system being , and the damper is~~ disposed on the drive arm and configured to engage a bumper supported by the base plate.

35. (Withdrawn-Currently Amended) The rotary photographic shutter of Claim 15, ~~the damping system further including~~ comprising an inner bumper joined to an outer bumper by a biased connector.

36. (Withdrawn) The rotary photographic shutter of Claim 35 wherein the biased connector comprises a spring wire, the spring wire being connected to a stop plate.

37. (Withdrawn-Currently Amended) The rotary photographic shutter of Claim 35 ~~further comprising a , wherein the~~ drive arm is configured to travel in an arcuate path between the inner bumper and the outer bumper.

38. Cancelled

39. (Withdrawn-Currently Amended) The rotary photographic shutter of Claim 35 ~~wherein the damping system further comprises~~ comprising an ~~inner~~ additional damper and ~~an outer damper~~, the ~~inner~~ damper and ~~outer~~ the additional damper configured to travel in an arcuate path between the inner bumper and the outer bumper.

40. (Withdrawn) The rotary photographic shutter of Claim 16 wherein the damping system comprises a bumper and a damper, the bumper and the damper being shaped to provide substantially point contact therebetween at one of an open position of the shutter blades and a closed position of the shutter blades.

41. (Withdrawn-Currently Amended) The rotary photographic shutter of Claim 40 ~~further including~~ , wherein the linkage comprises a drive arm configured to assist in opening and closing the shutter blades, and wherein the damper is disposed on the drive arm.

42. (Withdrawn) The rotary photographic shutter of Claim 40 wherein the damping system comprises a first bumper and a second bumper, the damper being configured to travel between the first bumper and the second bumper.

43. (Withdrawn-Currently Amended) A rotary photographic shutter, comprising:
a) a plurality of shutter blades moveable between an open and a closed position;
b) a drive arm configured to move the shutter blades between an open position and a closed position; and

c) a damping system comprising a bumper and a damper, one of the bumper and the damper being mounted on the drive arm, and the bumper and damper being shaped to provide substantially point contact therebetween at the one of the open and closed positions.

44. (Withdrawn) The rotary photographic shutter of Claim 43 wherein the bumper comprises an inner bumper and an outer bumper, the damper being configured to travel along a path between the inner bumper and the outer bumper.

45. (Withdrawn) The rotary photographic shutter of Claim 44 wherein the path is an arcuate path.

46. (Withdrawn) The rotary photographic shutter of Claim 43 wherein the damper comprises an inner damper connected to an outer damper.

47. (Withdrawn-Currently Amended) The rotary photographic shutter of Claim 43 wherein ~~one of the bumper and the damper is mounted on the drive arm~~ isolated from contact with the shutter blades.

48. (New) The rotary photographic shutter of Claim 15 wherein the linkage configured to oscillate between an outer bumper and an inner bumper.

49. (New) The rotary photographic shutter of Claim 15 wherein the linkage is configured to pivot about an axis offset from a central axis of the rotary photographic shutter.

50. (New) The rotary photographic shutter of Claim 15 further including an outer bumper and an inner bumper, the outer and inner bumpers being substantially entirely disposed on one side of a shutter opening defined by the shutter blades.